

REMARKS

Claims 1, 4, 5, 7, 8, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23, and 24 are pending. Claims 7, 13, 14, 21, 22, 23, and 24 are amended herein. Support for these amendments are found in the reissue application are Column 4, lines 41-64.

No new matter is added by way of these amendments and the Examiner is respectfully requested to enter them.

A. 35 U.S.C. § 251 Objection

Applicants respectfully request this objection be held in abeyance until there is an indication of otherwise allowable subject matter.

B. 35 U.S.C. § 112 Rejections

1. Claims 7, 12, 13, 14, 16, 18, 22, 23, and 24 stand rejected under 35 U.S.C. § 112, first paragraph for non-compliance with the written description requirement. The Examiner contends the term "free of antioxidants" is not described in the specification in such a way that reasonably conveys to one skilled in the relevant art that Applicants had possession of the claimed invention at the time the application was filed.

Applicants respectfully assert, the subject application incorporates by reference, U.S.S.N. 08/366,973 at Column 1, lines 7-10 and Column 7, lines 39-46. Support for "free of antioxidants" is found in U.S.S.N. 08/366,973, for example, at page 7, line 14 to page 9, line 7 (enclosed herein as Exhibit A).

In view of these remarks, Applicants respectfully request the rejection be withdrawn.

2. Claims 7, 12, 13, 14, 16, 18, 22, 23, and 24 stand rejected under 35 U.S.C. § 112, first paragraph for non-compliance with the enablement requirement. The Examiner contends "free of antioxidants" and "solid supports" are not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicants respectfully assert, the subject application incorporates by reference, U.S.S.N. 08/366,973 at Column 1, lines 7-10 and Column 7, lines 39-46. Support for

“free of antioxidants” is found in U.S.S.N. 08/366,973, for example, at page 7, line 14 to page 9, line 7 (enclosed herein as Exhibit A).

The subject application incorporates by reference U.S. Patent Nos. 5340731 and 5202247 at Column 4, lines 45-47 and Column 7, lines 39-45 (enclosed herein as Exhibits B and C, respectively). These patents disclose linkers such as polysaccharidase binding domains and cellulose binding domains and methods of use.

In view of these remarks, Applicants respectfully request the rejection be withdrawn.

C. 35 U.S.C. §102(b) Rejections

1. Hutchings U.S. Patent No. 4861514

Claim 8 stands rejected under 102(b) as being anticipated by Hutchings.

To anticipate, a single reference must expressly or inherently disclose each and every element of a claim. *In re Paulsen*, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994); MPEP § 2131 (citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). The examiner has the burden of identifying where each and every element of the claimed invention is disclosed in the reference. *Ex Parte Levy*, 17 U.S.P.Q.2d 1461, 1462 (citing *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984)). Furthermore, “the examiner must provide a basis in fact and/or technical reasoning to support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex Parte Levy*, 17 USPQ2d at 1464 (emphasis in original); MPEP § 2112 (discussing *Ex Parte Levy*). “The fact that a certain result or characteristic may occur or be present is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).” MPEP § 2112.

Applicants respectfully assert that Hutchings at least does not disclose “insect or arachnid population”. Therefore, Hutchings does not anticipate and Applicants respectfully request the rejection be withdrawn.

2. Sperti et al U.S. Patent No. 4,477,361

Claim 8 stands rejected under 35 U.S.C. 102§(b) as being anticipated by Sperti et al. The Examiner argues that Sperti et al disclose cinnamic aldehyde and if insects were present they would be killed.

Regarding the Examiner's position that "if" insects are present they would be killed, Applicants respectfully point out that the MPEP § 2112 states: "The fact that a certain result or characteristic may occur or be present is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993)."

In view of the requirements to anticipate described above, Applicants respectfully assert that Sperti *et al.* at least do not disclose "insect or arachnid population".

In view of these remarks, Sperti *et al.* do not anticipate and Applicants respectfully request the rejection be withdrawn.

3. Narasaki *et al.* JP-64016706

Claims 1, 4, 5, and 8 stand rejected under 35 U.S.C. 102(b) as being anticipated by Narasaki *et al.*

In view of the requirements to anticipate described above, Applicants respectfully assert Narasaki *et al.* at least do not expressly or inherently teach: (i) a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde that is free of antioxidants other than said compounds; (ii) an aqueous formulation providing for about 70% or greater kill of a pest population; and (iii) a composition linked to a solid support.

In view of these remarks, Applicants respectfully request the rejection be withdrawn.

4. Howell *et al.* U.S. Patent No. 5,102,675

Claims 7, 12, 13, 14, 21, and 24 stand rejected under 102(b) as being anticipated by Howell *et al.*

Howell *et al.* disclose a method of soaking oak wood chips in water or water and ethanol and toasting the chips.

In contrast, Claims 7, 21, and 24 are drawn to a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde, wherein said composition is linked to a solid support. Linking to a solid support is disclosed in the reissue application at Column 4, lines 41-64. Methods for linking utilize a linker, such as a polysaccharide binding domain and a cellulose binding domain. As described above,

Howell *et al.* do not disclose linking as instantly claimed. Howell *et al.* disclose soaking and toasting oak chips.

Thus, Howell *et al.* do not anticipate the claimed invention and Applicants respectfully request the rejection under 102(b) in view of Howell *et al.* be withdrawn.

5. Ando *et al.* JP-3268901

Claims 7, 12, 13, 14, 16, 21, and 24 stand rejected under 102(b) as being anticipated by Ando *et al.*

Ando *et al.* disclose a paint comprising cinnamic aldehyde for coating the surface of a wooden flooring.

In contrast, Claims 7, 21, and 24 are drawn to a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde, wherein said composition is linked to a solid support. Linking to a solid support is disclosed in the reissue application at Column 4, lines 41-64. Methods for linking utilize a linker, such as a polysaccharide binding domain and a cellulose binding domain. Ando *et al.* do not disclose linking as instantly claimed. Ando *et al.* disclose paint.

Thus, Ando *et al.* do not anticipate the claimed invention and Applicants respectfully request the rejection be withdrawn.

6. Tanaka JP-4176460

Claims 7, 12, 13, 14, 16, 21, and 24 stand rejected under 102(b) as being anticipated by Tanaka.

Applicants respectfully assert that an adhesive does not link a composition to a solid support as instantly claimed. Linking to a solid support is disclosed in the reissue application at Column 4, lines 41-64. Methods for linking utilize a linker, such as a polysaccharide binding domain and a cellulose binding domain which specifically bind to cellulose. In contrast, an adhesive binds by non-specific interactions.

Therefore, Tanaka does not anticipate and Applicants respectfully request the rejection under 102(b) in view of Tanaka be withdrawn.

7. Sugamoto JP-381202

Claims 7, 12, 13, 14, 16, 21, and 24 stand rejected under 102(b) as being anticipated by Sugamoto.

Sugamoto discloses at page 5, paragraph 5 spraying a carpet with a composition.

In contrast, Claims 7, 21, and 24 are drawn to a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde, wherein said composition is linked to a solid support. Linking to a solid support is defined in the reissue application at Column 4, lines 41-64. Methods for linking utilize a linker, such as a polysaccharidase binding domain and a cellulose binding domain which specifically bind to cellulose. Sugamoto does not disclose the use of linkers. Sugamoto discloses spraying a carpet.

In view of these remarks, Applicants respectfully request the rejection be withdrawn.

Serial No.: 08/977,644
Filed: November 24, 1997

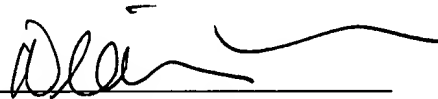
CONCLUSION

Applicant respectfully submits that the above amendments and arguments fully resolve each of the Examiner's rejections. Allowance is therefore requested. If the Examiner feels there are additional outstanding issues, the Examiner is invited to call the undersigned attorney at (415) 781-1989.

Respectfully submitted,

DORSEY & WHITNEY LLP

Dated: August 19, 2004

By: 
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Filed under 37 CFR §1.34(a)

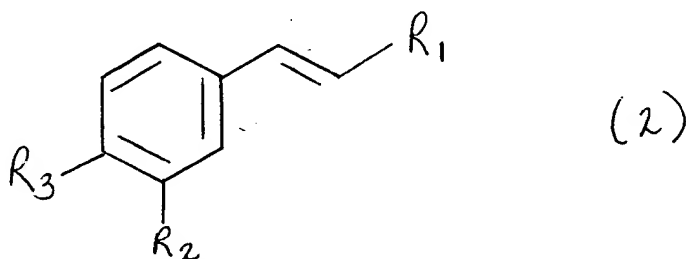
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insect with a plant part or tissue from which the pathogen derives nutrients, typically essential nutrients such as amino acids, particularly methionine. By "natural product" is intended an organic compound of natural origin that is unique to one organism, or common to a small number of closely related organisms, and includes secondary metabolites of fungi and chemicals produced by plants. The natural products can be isolated from a natural source, be wholly or partially synthetic, or be produced by recombinant techniques. The method of the subject invention is carried out by adding an effective pathogen-inhibiting amount of a compound of the invention to a plant host or to the substrate in which it is growing or is to be growing. The amount of antipathogenic agent that is applied either to the plant itself or to the rhizosphere will depend upon the degree of infestation and to some extent upon the formulation and the specific compounding used and therefore must be empirically determined for best results.

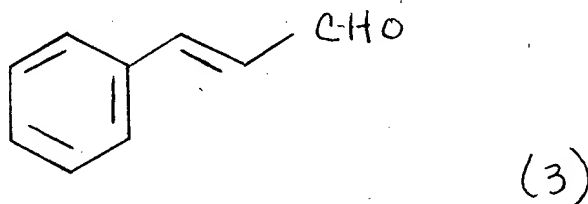
The compositions and methods of the subject invention offer several advantages over existing compositions and methods. Although a flavenoid aldehyde, cinnamic aldehyde, has been reported to exhibit antifungal properties, it has not previously been used on plants in the absence of an anti-oxidant. As an example, U.S. Patent Application No. 4,978,686, discloses that an anti-oxidant is required for use with cinnamic aldehyde for a composition which is used for application to crops. Anti-oxidants are expensive, accordingly significant cost benefits are realized with the subject formulation. Phytotoxicity of the formulation also is decreased. In addition, a single application of cinnamic aldehyde is sufficient for long term protection of the plant host from pathogenic organisms, including both rust and powdery mildew, and is effective at lower concentrations than has been reported previously. The long term control of pathogenic organisms results in a healthier plant and an improved yield of produce of the host plant as compared to untreated plants; the lower concentrations and single dose of antipathogenic agents decrease the likelihood of damage to the plant or its crop as well as decrease the likelihood of any adverse

side effects to workers applying the pesticide, or to animals, fish or fowl which ingest the tissues or parts of treated plants.

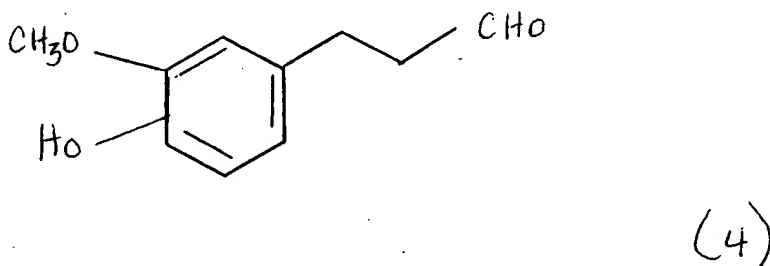
The subject formulations also provide for effective control of both fungi and insects, eliminating the need for application of multiple agents. In particular situations, such as where an insect damages a plant part or tissue and a secondary fungal disease develops, this aspect of the invention is particularly advantageous. The subject formulation is as shown in formula (1) above. A preferred formulation is shown in formula (2) below.



Wherein R_1 represents-CHO, R_2 represents-OH or an organic substituent containing from 1 to 10 carbon atoms, and R_3 represents a methoxy group or organic substituent containing from 1 to 10 carbon atoms. Of particular interest are flavenoid aldehydes, particularly aromatic aldehydes. Examples of aromatic aldehydes of us in the present invention are cinnamic aldehyde ((3) below).



and coniferyl aldehyde ((4) below).



A number of the aromatic and aliphatic aldehydes which find use in the subject invention, such as benzaldehyde, acetaldehyde, cinnamaldehyde, piperonal, and vanillin are generally regarded as safe (GRAS) synthetic flavoring agents (21 CFR §172.515). These compounds have been reported to have inhibitory activity against *C. botulinum* spore germination. Bowles and Miller, *G. Food Protection* (1993) 56: 788-794. The general formula of these compounds is shown above as (1).

The compounds may be used either alone or in combination with other active or inactive substances and may be applied by spraying, pouring, dipping, in the form of concentrated liquids, solutions, suspensions, powders and the like, containing such concentration of the active compound as is more suited for a particular purpose at hand. They may be applied, for example, in the form of dilute solution, in a suitable solvents directly to the rhizosphere either as part of an irrigation schedule or as a separate application.

For use as a foliar spray, although the aldehyde can be formulated alone, it can be rendered substantive by including an emulsifier such as Tween 80. Other detergents which can be used include anionic detergents such as those described in U.S. Patent Application No. 4,978,686. Generally, detergents in the formulation do not detract from the antifungal properties of the flavenoid aldehydes but do increase the substantive properties of the formulation. See for example, U.S. Patent Application No. 4,477,361. Additional components such as an aqueous preparation of a salt of a polyprotic acid such as sodium bicarbonate, sodium sulfate, sodium phosphate or sodium biphosphate can be included in the formulation, to increase the antifungal properties of the formulation. The resulting emulsion is diluted to an appropriate concentration for use.

In a preferred embodiment, the formulation includes cinnamic aldehyde and/or coniferyl aldehyde in a formulation containing Tween 80 as an emulsifier and sodium bicarbonate. The preferred formulation for treating powdery mildew, rust and spores, as well as aphids is an emulsion which contains